

NASA Langley Research Center



FIRST CENTER
*Langley Memorial
Aeronautical Laboratory*



**NEW
TECHNOLOGIES**



**COMMERCIAL
&
MILITARY**

NASA Langley Research Center **Vertical Flight Heritage Site**



May 8, 2015

Pioneering a Pathway to the Future

New Vertical Lift Technologies

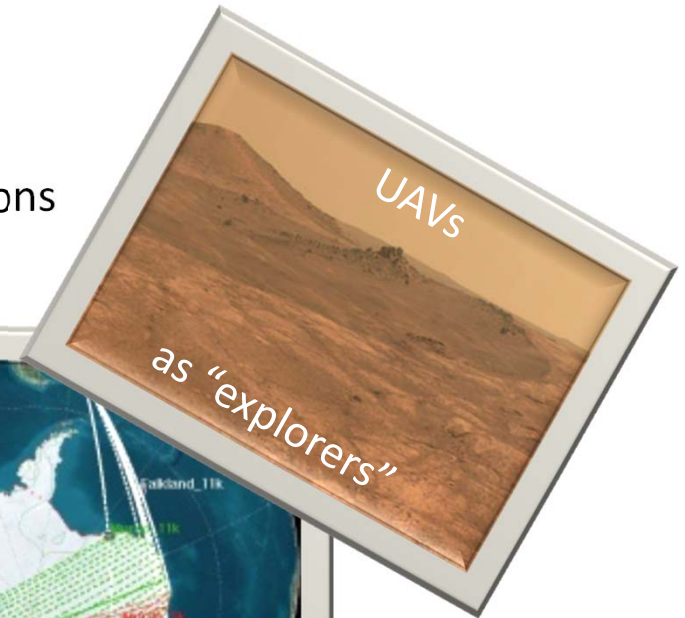
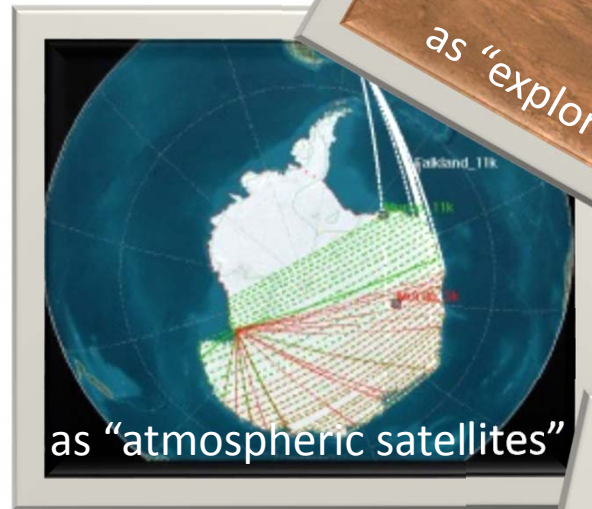


Test Platforms



New Intelligent Flight System Technologies

New Missions



New Services



Partnering for Test Capabilities

Joint Based Langley-Eustis

VA MAAP

VA Institute of Marine Science

Private Restricted Fields

CERTAIN*



Industrial Settings

Wetlands

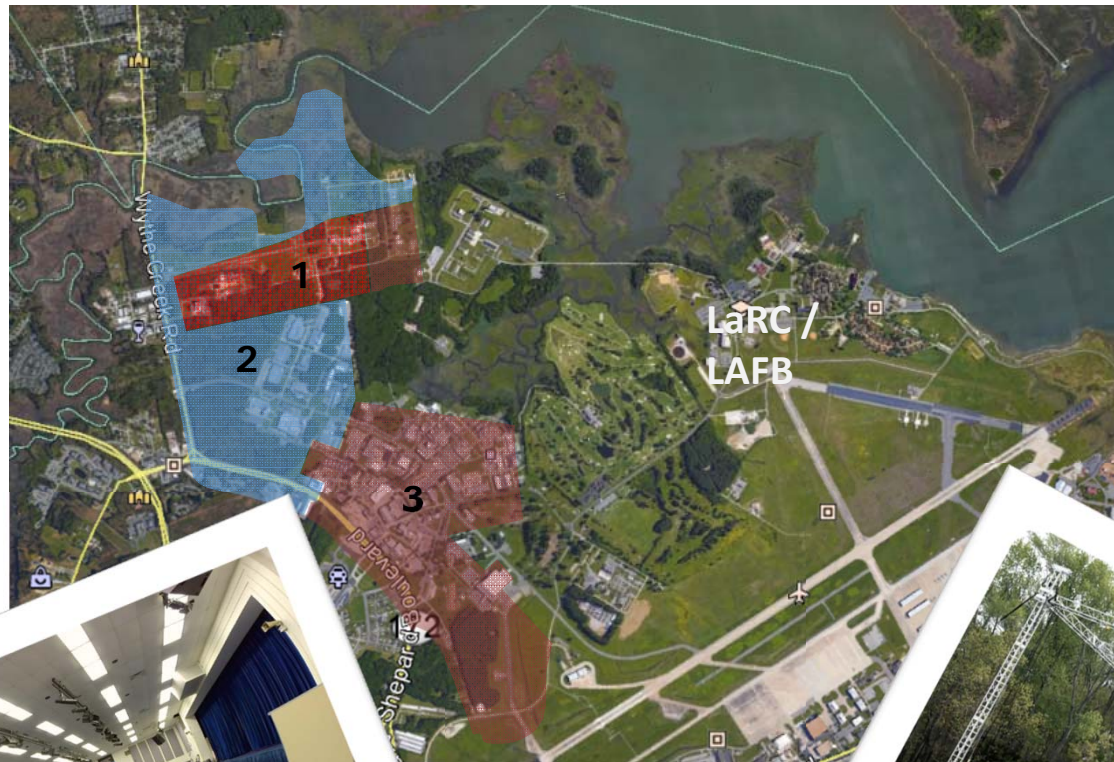
Fields

Urban environment

* **City Environment for Range Testing of Autonomous Integrated Navigation**

CERTAIN - A Phased Approach

SAFE – RELIABLE – ROBUST - REPEATABLE



Phase I

Indoor flight

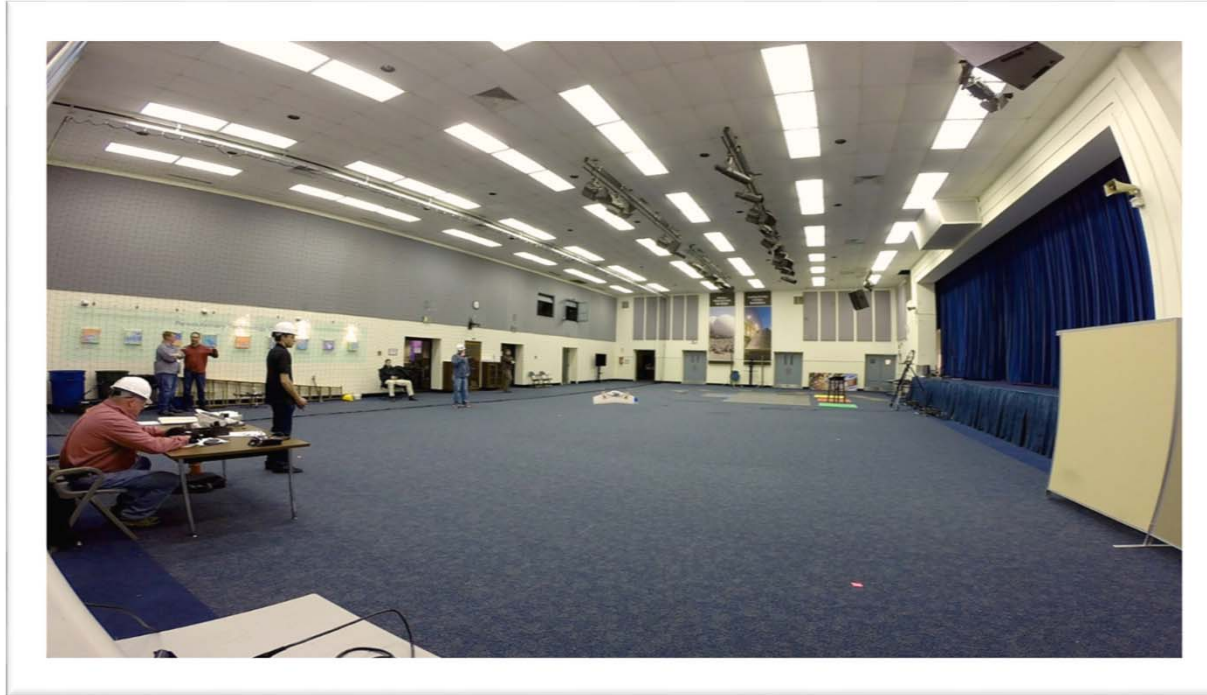
Transitional flight

Overflight of scattered buildings and intermittent personnel



CERTAIN - A Phased Approach

SAFE – RELIABLE – ROBUST – REPEATABLE



Indoor T&E in Langley Autonomy and Robotics Center

- Over 70,000 cubic feet of operational flying space
- Indoor GPS Emulation (transparent to the data-dependent vehicle)
- Open architecture for easy integration of customer software
- DoD Messaging Standard (DDS) for seamless software interfaces

CERTAIN - A Phased Approach

SAFE – RELIABLE – ROBUST - REPEATABLE



Phase II

Wetlands

Clusters of buildings with routine Center functions

CERTAIN - A Phased Approach

SAFE – RELIABLE – ROBUST - REPEATABLE



Phase III

NASA Langley Research Center

Address the day-to-day challenges of flight over personnel, transportation, and facilities

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